

FLORIDA PLANT IMMIGRANTS

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Illustrating and Describing

NEW OR RARE PLANTS THAT HAVE BEEN
INTRODUCED INTO FLORIDA
IN RECENT YEARS

Together with

SUGGESTIONS REGARDING THEIR USES
and
SPECIES DEEMED WORTH INTRODUCING



OCCASIONAL PAPERS

of the

FAIRCHILD TROPICAL GARDEN
COCONUT GROVE, FLORIDA



FOREWORD

By DAVID FAIRCHILD

IT IS now nearly forty years since I first came to the Biscayne Bay region and saw some coconut palms being planted in the newly laid out grounds of the Royal Palm Hotel, long since a thing of the past.

Ever since that time, in 1898, I have watched with keen interest the changes that have taken place in the region. Then, there were a few frame houses only and a few hundred inhabitants; now there are places of comfort and luxury and in winter almost half a million people.

It has been my pleasure during these years to work with plants that will grow here and encourage the culture of such as have appealed to me as valuable for one reason or another.

Since the number of those which were indigenous to South Florida and appeared to have useful properties was limited, it was natural that my associates and I should have looked to other countries for plants; particularly to countries having conditions similar to those of this region.

This search in foreign lands has led to the discovery of a good many plants which will grow here that were not known at all by the early residents of South Florida.

The story of their introduction and gradual spread into the gardens and dooryards of residents of the area, is known in a general way but unfortunately there never has been any real attempt to acquaint the public with what is going on in this field.

In order to do this it is proposed to publish pictures of these plants that have been introduced, together with accounts of their characteristics, the methods required for their culture and their uses in the home.

It is contemplated that these pictures with their accompanying text will form a series of "Occasional Papers" of the Fairchild Garden. They will not be issued at any stated intervals.

Nearly twenty-nine years ago, in 1908, Alexander Graham Bell, who was always interested in discovering new uses for things, including plants as well as anything else, proposed to me that I organize a "Plant Utilization Society" to be run for the purpose of stimulating an interest in the uses of new plants as contrasted with the old ones already cultivated in America. At the same time he suggested the name "Plant Immigrants" as a suitable title for a magazine to cover the subject.

He asked me to put my ideas on the subject into writing, which I did. I found recently a copy of this memorandum among my papers and since certain paragraphs in it seem appropriate I am taking the liberty of presenting extracts from them here. I am quite aware that in doing so I am liable to be misunderstood, since the approach of the conditions of over-production that have overturned the farm program were not even suspected in 1908. It was looked upon then as a desirable thing to open up new areas for cultivation. The gigantic scale of food production operations of today had not then caught the American imagination and the vision of multitudes of small home farms where a great variety of foods would be

produced was still in peoples minds. Neither had the problems of a decreasing population in America been forecast. These changes, however, do not appear to me to make it undesirable to encourage the culture of an ever widening variety of food and otherwise useful and ornamental plants.

"You have asked me, Mr. Bell, if there was not a place in the world for some organization which might be called a Plant Utilization Society which would encourage thousands of people who are interested in plants to discover new uses for them. I believe that there is a place for such an organization and that the time is ripe for its formation. My reasons for thinking so may be summarized in the following paragraphs:"

"It is an astonishing fact, that with few notable exceptions no *civilized* nation has since the dawn of written history brought into cultivation any new wild plants. Practically all of our cultivated plants, upon which the great wealth of the world depends, have come down to us from uncivilized races and their discoverers, so to speak would be looked upon today as savages. The efforts made by civilized peoples to deliberately discover new uses for the wild food plants around us have been, until quite recently, few and far between."

"One of the great difficulties which has hitherto stood in the way of the domestication of wild plants has been within the last ten years brushed aside by the appearance of hundreds of efficient experimenters in different parts of the world. I refer to the difficulty of ameliorating a wild plant which is now possible by means of breeding and selection. To make of a wild inedible fruit an edible one was until quite recent times a matter of pure chance. Today, by means of hybridization, its flavor, color and form can be so changed as to make of it an entirely new "table fruit." (Once people's taste can be intrigued by it). This country has passed through the pioneer stage and is entering a new period in which the great problem will be one of increasing the kinds of plants grown. These new plant creations are difficult to bring into use and no organization exists for the purpose of doing it."

"A society which would bring together the people who create or cultivate new plants, those who enjoy testing new plant products and tasting them, and those who believe that by increasing the number of uses made of plants the wealth of the country is materially increased, would fill a real need."

"The ignorance which now exists regarding the useful plants upon which the wealth of foreign nations depends prevents the adoption by the highest civilized country of many of the best useful plants and leaves largely to chance the adoption of plant cultures from which other countries draw their supply of plant material."

"There is now no organization to which the discoverer of a new plant use can come with any hope of practical assistance in its exploitation. The discovery by Government experts of new uses for plants and new valuable plant products often does not get beyond the experimental stage because of the difficulty of making commercial arrangements which may seem like favoritism on the Government's part towards those wishing to engage in their exploitation. Exploitation appears to require a certain degree of monopoly, either natural or artificial."

"The discoverer of a new plant use seldom makes money out of it, and there is no organization which honors him for having found a new plant use. Such an organization would bestow honors which would stimulate discovery."

"While there are hundreds of trade papers and special periodicals which deal in a technical way with almost every phase of plant life, there is yet a place for a magazine such as the organ of a Plant Utilization Society might be in which the dominant note should be

the utilization of new plant products, and the discovery of new uses for wild plants rather than new ways of cultivating the varieties of plants already well known in cultivation."

"The object of such a magazine should be to spread far and wide among the younger generation the idea that we are now using an insignificant number of the wild plants of the world and that we should widen and take into cultivation greater and greater numbers of those wild species in order to broaden the basis on which our agriculture rests. If we could imagine attempting to utilize fully the agricultural resources of such a country as the United States by means of the wheat plant alone, we may perhaps realize how imperfect the utilization of our country is today when we have employed a few score of species only of plants to do it with, instead of the hundreds which we will some day be using. I mean simply this, if for the sake of argument we should assume that we only had one plant, the wheat plant, which will grow only on certain soils and in certain regions which are not too cold or too dry, we would produce all of our food in these restricted regions and the rest of the country would be waste land so far as its utilization for food production was concerned." (This example presumes that everyone liked the taste of wheat and was fully nourished by it.)

"Few people, except foreigners fresh from crowded Europe, realize how vast the acres are in America which are not now profitably cultivated. The wet lands, the arid lands, the mountain slopes, the barren hillsides, must sooner or later be brought under cultivation."

"There are even large areas of land like the rice lands of the Carolinas, which in former years, supported communities but which for want of a profitable crop have been abandoned. The discovery of a new crop for such lands would be like the discovery of a gigantic coal field or gold mine." (provided people wanted the product and would pay enough for it to make it profitable.)

"Such a society could take up the dissemination of information regarding the discoveries of new plant uses at a point where our Bureau of Plant Industry and the State Experiment stations and other research institutions drop them. New fruits originated by their experts might be passed upon by its committee of commendation, which committee would seek to stamp the approval of people of *recognized standing in matters of taste* on these new creations of science in a way which seems very difficult without the publicity of such a society. Such of the newly introduced varieties of plants from abroad as were of special merit could be called to the attention of the very class of people most likely to use them. The work of the Division of Plant Introduction of the Federal Government which is too little understood by the public at large could be presented in a new but reasonable way before a class of readers which is not now reached by its own publications."

"As it is now, many of the new plants brought in are not cultivated, because of the difficulty of making a market for them. One of the main objects of the society would be the creation of a market for new plant products and in cooperation with the Federal departments and State institutions of agriculture such a society might arrange for the testing of them by individuals capable of creating a fashion for such new plant productions."

While I was never able to undertake the organization of a society such as Mr. Bell had in mind, I was at the time so taken by the appropriateness of the title for its magazine that I applied it at once to a modest little leaflet which my colleagues and I of the Office of Foreign Plant Introduction were starting. This was designed to make better known the plants that we were introducing from abroad.

For over fifteen years this leaflet appeared monthly and went out to experimenters throughout the country who were testing the newly introduced plants. It was discontinued after I relinquished active guidance of the office but I believe it had a very material effect

in stimulating an interest in the new plants we were bringing in. There are to be found in it many valuable half tones, illustrating new plants and many notes regarding their characteristics which have been written by men and women who actually knew them either from having studied them abroad or grown them at home.

It is because of the success of this "Plant Immigrants," which was discontinued against my advice and with no regard to its popularity, that I am prompted to use the name again, confining its scope to those plants that have come in or are due to come into Florida, and avoiding the responsibility involved in a monthly publication by using the designation "Occasional Papers."

Lest there be such as do not appreciate the fact that in South Florida, conditions of climate and soil exist which make the region one peculiarly suited to experiments with tropical plants, it may be well to set down some of the characteristics of the region that a long familiarity with it have taught some of us to appreciate.

First: The climate of the favored locations here is the most nearly tropical of any in the whole United States. There are considerable areas where 30 F. appears to be as low as the temperature goes in winter. Nearly every spot on it is at sometime or other subject to light frosts, but this may also be said of many regions where strictly tropical plants are grown. Temperatures of 28 F. and even 26 F. occur, but only rarely, and then are of short duration. The rainy season is in summer and the dry season in winter, much as is the case in tropical places north of the Equator. There are periods of drouth of some severity but these are nowhere comparable to the drouths of the Great Plains area. Furthermore, irrigation water is always available at comparatively little expense. There is a network of underground streams of fresh water under much of the land in the region and it can be tapped by shallow, driven wells. The annual rainfall is high, attaining 76 inches in rainy years and sinking to 42 in especially dry ones. This is as much and no more fluctuation than in some strictly tropical regions. The nights are not too cool, even in winter for the growth of many tropical plants. In this respect the region differs from the whole Mediterranean basin and the coast of California. Indeed if there had been long continued land connections with the South American continent and through to the Brazilian plateau the number of tropical trees here would have been many times greater.

As an index of the tropical character of the climate, the Coconut palm may be taken. It thrives here as well as it does at elevations of a thousand feet in the tropics although in neither location does it produce satisfactory commercial quantities of oil in its kernels.

Second: Although the variety of soils here is not so great as might be desired and whereas in general it may be considered to have too much lime and in the spots that are favored by the mildest climate the soils are rocky or composed of marl, there is this advantage of our soils over those of most tropical lands: an almost complete absence of mud. In most countries mud is the curse of the amateur gardener. It prevents him from enjoying his garden as we can ours during a very considerable portion of the year because he must wear rubbers or heavy boots and those boots are usually covered with mud. Our soils are so porous that even a rain of nine inches which sometimes falls here in an afternoon fails to make them "impossible" on the following morning. The calcareous sand underlain with porous limestone rock dries out in a few hours. In fact when the sand gets really dry it is difficult to wet it with irrigation water on account of its extreme dryness. The rocky soils have the advantage over the deep sandy ones in that they never dry out so completely. The rock brings up moisture from the underground water table which is only a short distance below it. To some the fact that in our rocky soils it is advisable to blast where the overlying layer of sandy soil is too thin, in order to make holes large enough for the roots of the trees, con-

demns it completely. They forget that in many of the best orchard regions of the country, blasting holes for fruit trees has become an established practice—almost universal where the top soil is underlaid with hard pan. For amateur gardens this characteristic has some advantages. It makes it possible to make pockets in which a variety of soils can be maintained. Even Azaleas and Blueberries which require an extremely acid soil have been grown for years in pockets made in the limestone rock by filling them with pure German peat.

Perhaps the greatest lack in our soils is potash. They are poor in this plant food. Of phosphoric acid, magnesium and nitrogen the soils have a moderate amount; even the limestone rock has some of these ingredients. The so-called marl prairie soils have been found deficient in manganese as have also some of the sandy soils; and like many other soils there is often a lack of those other rarer elements that have recently been found essential to good plant growth such as traces of zinc, copper and iron. But all of these are easily supplied and the amateur gardener is being aided to an understanding of the use of these by the soil chemists of the experiment stations, and the various fertilizer firms which supply this region. It would be a mistake to jump to the conclusion as many have done that because fertilizers of some sort are necessary here, this region is permanently handicapped, for artificial fertilizers are coming to be looked upon today as necessary in most of the highly developed agricultural regions of America. There are it is true some volcanic tropical soils which are so rich that fertilizers are not needed, just as there are some deep alluvial river bottom soils in America that seem to have an almost inexhaustible supply of plant foods. There is furthermore, a certain advantage in a soil that is not so rich that the grass problem becomes annoying. Grass cutting constitutes a perpetual drain on the purse of a garden owner in the ultra tropics.

There is one special feature, however, that characterizes this South Florida region, and anyone who is interested in gardening soon comes to appreciate it. I refer to the presence in the region of several hundred thousand people, among whom there are many hundreds who are interested in new plants; either ardently or at least superficially; at least interested enough to form an audience and a very sympathetic one, too. I have seen gardens of great beauty that were made in locations far away from large settled communities; but there are not many gardeners who, unaided by the encouragement of intelligent companions can make a really beautiful garden. The craving for companionship seems to be as much a part of the make up of plant lovers as it is of other folk. Here in South Florida there have settled since the nineties, more persons of intelligence and means who like to play with plants than are to be found anywhere in the tropics, so far as my observation goes. I am aware that there are many places in the tropics where wonderful gardens are maintained by "native" gardeners but where are there to be found so many little dooryard gardens with palms and tropical vines, each kept by the owner of the house which it surrounds, as we have here today in southern Florida?

It is to these intelligent dooryard gardeners that we must look for the initiative required to bring into culture new tropical plants. They are the persons who are going to take an interest in the utilization of such plants. They are the ones to whom encouragement means everything. They are the experimenters who are reaching out for new forms to play with. From them, in the past, have come important new plant industries. The beginnings in America, of the Grapefruit, the Avocado, the Papaya, the Tung Oil and the Mango industries are traceable to the amateurs of Florida.

Never before in the history of the world has such a large number of these potential discoverers in this field of plant utilization settled in what is essentially a tropical territory. A territory, if you please, where for nine months of each year—nine months on end—not in two half periods—gardening out of doors is a real pleasure; for during these months it is

neither too hot nor too cold to work in the garden. Here snows and frozen ground do not inhibit gardening in winter and the torrid heat of midsummer which visits most of the states of the union is a thing unknown.

In his text book, "Outline of Plant Geography," Douglas Campbell of Leland Stanford University has put the matter tersely; "In general, the climate of the eastern third of the United States is one of hot humid summers and cold winters. Except for a small part of southern Florida, no part of the eastern states is immune from occasional killing frosts; while over the greater part of the area the winter is a season of absolute cessation of all plant activity, and in the interior more than half the year is a dead season for pretty much all vegetation."

By carefully studying the wealth of tropical plant material which can be grown here, not by clinging to the northern garden plants with which they are familiar, these pioneers of southern Florida are destined to create a new era in tropical horticulture.

The vastness of the plant resources which are waiting to be tapped and the possibilities that lie before the breeder of tropical plants, cannot fail to be appreciated by anyone who will take the pains to study the vast literature relating to the tropics which for centuries has been accumulating in the great botanical libraries of the world.

This region of South Florida blessed with a Tropical climate, is at the threshold only of its development.

PLANS FOR THE FUTURE.

by Robert H. Montgomery,
Director of the Fairchild Tropical Garden

It is proposed to publish the "Occasional Papers" from time to time. As stated by Dr. Fairchild, emphasis will be laid on "Plant Immigrants" so that the members of the Fairchild Tropical Garden will have first hand news of tropical introductions which will be of particular interest to the residents of Florida. Papers dealing with new and beautiful palms, suitable for dooryard and house use are now in preparation. These papers as well as others, will be illustrated.

Plans are under way for the distribution in 1938 to members of the Garden of seeds and young plants of many species and varieties of new and old tropical trees, shrubs and vines. Until funds permit, this distribution will be limited to the senior classes of membership, unless some kind friend will endow this division of our Garden.

The successive "Occasional Papers" will be punched for insertion in the binder which is furnished with this foreword. For a short time new members of the Garden will be furnished with a binder and all back numbers. The scope of future issues will be governed by the wishes of the members. Obviously some papers will be rather technical, which is necessary in describing new plants or trees for the information of botanists as well as for future use. Other papers will avoid technical language and will, it is hoped, appeal to all who are interested in tropical horticulture.

Plans are being made for the equipment of a Palm Museum and rooms for its reception have been set aside as temporary quarters by the University of Miami in its main building in Coral Gables. It is proposed to gather together in it, materials that will illustrate the great number of uses made of palms by foreign peoples as well as photographs, a seed collection, and special herbarium specimens showing the variety and beauty of this unique family of tropical plants.

Suggestions are invited from all members relative to specific subjects as well as to the general scope of the "Occasional Papers."





